

COMPETITIVE DIFFERENTIATION THROUGH ADAPTIVE CAPACITY – A CASE STUDY IN HEALTH AND SAFETY SERVICES

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ABSTRACT

Background: Small companies operate in contexts marked by variability, regulatory requirements and unexpected events. In Health and Safety Services (HSS) this combination makes organizational resilience and adaptability relevant to sustain performance and grow in a highly demanding and regulated market. **Objectives:** Describe and understand how a HSS company built competitive differentiation through adaptive capacity, based on institutional milestones, including disruption caused by COVID-19, followed market expansions. **Methodology:** Retrospective case study using organizational history and process tracking to reconstruct decisions, certifications and creation of units; complemented by operational indicators and interpretative readings. **Results:** Expansion by creating adjacent units, maintaining service consistency through a central coordination hub with a small number of coordination functions that mobilize a large network of providers across the country. Certifications and authorizations reinforced legitimacy and scalable delivery. COVID-19 triggered a rapid reconfiguration of activity. As scale increased, the main constraint shifted from fixed capacity and responsiveness to coordination and margin management, culminating in coordination bottlenecks. **Conclusions:** Differentiation results from a resilient orchestration with local adaptations on the ground converted into routines, training and minimum standards while monitoring, buffers and governance maintain extensible coordination under pressure of growth and regulation.

Keywords: Organizational Resilience, Adaptive Capacity, Occupational Health and Safety, Systems Ergonomics, Case Study.

1. INTRODUCTION

Small and medium-sized enterprises (SMEs) make up the bulk of businesses around the world, and their weight in job creation and economic expansion is hard to miss. According to the World Bank, SMEs account for roughly 90% of all firms and provide more than half of global employment (World Bank, 2025). Across Europe, that proportion is even higher (EU-27 99.8%; Portugal 99.9%), and SMEs also carry a major share of employment (Brock, 2025).

In environments with large economic variations and major market changes, a company's ability to adapt and maintain performance over time is a competitive factor. The variability of actual work is amplified in situations involving high regulatory requirements, great time pressure to meet deadlines, or relevant differences in the type of customers (Unit4, 2023). However, high

regulatory requirements can hinder routine adaptations at the Sharp End. This is highlighted for instance in the areas of Occupational Safety and Health (OSH). Nevertheless, such adaptations in highly regulated situations can make the system more fragile, increase risks throughout the processes and eventually increase the need for monitoring the System.

This study follows the development of an OSH services company over 2013–2026, tracing how it expanded while dealing with shifting markets, uneven demand, and tighter regulatory scrutiny. Growth depended on a set of adaptive moves: creating separate but mutually reinforcing units (Health, Food, Safety, Training, and later Protect and Pharma), and turning what staff learned in the field into routines and services that could be repeated and scaled. To examine these changes, the analysis draws on Organizational Resilience, with particular attention to Hollnagel's four resilience potentials, Respond, Monitor, Learn, and Anticipate, as well as the Efficiency–Thoroughness Trade-Off (ETTO). In this view, ongoing pressure to work faster and deliver more can pull against safety and quality requirements (Hollnagel, 2009, 2010, 2015).

In his models, Woods states that companies, as socio-technical systems, are permanently adapting, facing challenges and looking for opportunities (Woods, 2018). Building on this we examine extensibility and the graceful margin in the face of mismatches between demand and capacity. Also, aims to analyse how the organization can extend resources and coordination beyond capacity using buffers as mechanisms of prioritization and scalability with a view to growth (Woods, 2015). It is also perceived from Woods works (2015, 2018) that challenging the limits of the organization as a System can allow expanding competencies, improving adaptive capacity and anticipating future problems, improving levels of readiness for future adjustments in response to stressful challenges.

2. MATERIALS AND METHODS

This study was conceived as a case study of a Health and Safety Services company growth and evolution, especially in the decade from 2015 to 2025, using 2013 as the initial reference to the trajectory and framed by structured milestones of the company's evolution in this period.

The main objective was to describe, in a traceable way, how the organization has evolved through decisions, agreements, creation of units and operational reconfigurations, and how this evolution has been reflected in observable indicators of scale as revenues and number analysis, coverage and diversification analysing the portfolio of products and territorial expansion. This operational and growth evolution was evaluated as a sequence of episodes that make visible the development of adaptive capacity throughout this period.

A Portuguese company of integrated Safety, Health and Well-Being at Work places, with national expression, in the beginning its activity was only clinical analysis services and nursing services for the Business sector. Thru a decade, it has evolved into a multi-unit portfolio that includes the provision of broader health services such as medicine, nutrition, psychology, physiotherapy and others, certified and accredited training, food safety services and the collection of food and *Legionella* samples for food analysis and the provision of occupational safety services. These services are also complemented with a wide variety of health and alcohol screenings and seasonal flu vaccination campaigns nationwide in companies, as well as ergonomics assessments, **environmental tests** and corporate wellness initiatives. Recently, it expanded into the areas of professional clothing and emergency safety signage and to the pharmaceutical area with a unit dedicated to this highly regulated sector (Safegene, 2025a).

To reconstruct the trajectory, organizational history with process tracking was used. Documents made available by the company were analysed, namely production reports of training activity,

reports and accounts for the years 2013-2015 where the annual turnover of each strategic unit is analysed and where the overall performance, growth and financial margins by the management of the company are evaluated. The results published annually to the official entities by company were also consulted.

Each milestone was analysed using common process tracking criteria such as changes, challenges, and learning factors (Safegene, 2025b) that were used to anticipating challenges to respond, adapt, and evolve during the decade. This structure allowed to build a table where the different factors are organized for each milestone.

3. RESULTS

The company has grown through a cumulative trajectory creating adjacent units and making service extensions. Adaptive capacity is the result of each milestone's contribution. This evolution has occurred from an initial relational and legitimacy basis (2013) to the establishment of clinical capacity to stabilize physical, face-to-face delivery (2015), diversification for food security (2017) and the transformation of field experience into scalable training (2018). Since 2019, the regulatory frameworks *Directorate-General for Employment and Industrial Relations* (DGERT) certification, Authority for Work Conditions (ACT) accreditation for training in Safety, Medical Emergency National Institute (INEM) accreditation for training in medical emergency and ACT authorization for Safety Services Provider) reinforce consistency and credibility, allowing a controlled expansion in markets with higher demand and greater visibility, but also more demanding and impatient. The creation of Protect (2024) and Pharma (2025) extends this trajectory to clustering and regulated logistics, ending in a nationwide multi-unit consolidation (2025) (Table 1).

The milestones were used as "anchor events" to structure the chronology, avoiding ambiguity and temporal mistakes. The COVID-19 pandemic (2020–2022) was treated as a specific disruptive episode and analysed as a system stress test, describing the reconfiguration of resources and supply (training and awareness, temperature measurement, provision of Personal Protective Equipement (PPE), and subsequent expansion for testing).

Table 1: Process tracking with milestones, changes, challenges, and learning from experience.

Year	Milestone	Change	Challenges addressed	Factors monitored	Anticipated challenges	Learning from experiences
2013	Health (Foundation)	Institutional starting point	Market search, building legitimacy, agreements and relationships	Demand signals, quality of partners, service KPIs	Scale; Formalize processes; Future regulation	Early service delivery built trust and a partner base
2015	Construction of the Health Unit	Installed physical capacity	Create local service; Enable in-person delivery	Utilization, volumes, satisfaction; costs	Growth in demand; Diversify services	Used initial credibility to invest and stabilize operations

Year	Milestone	Change	Challenges addressed	Factors monitored	Anticipated challenges	Learning from experiences
2017	Food Safety	Formal entry into food safety sector	Take advantage of installed resources; Meeting the demand for food security	Audit requests, incidents, food analysis;	Specialize, Changing Standards	Moved routines and resources to a new domain
2018	Training	Formalization of training	Offer training; Improve the use of resources, scalable learning	Demand, conclusion rates feedback;	Standardize at scale, Prepare for certification	Retention of client, manage diversity
2019	DGERT (Certified training body)	Regulatory reinforcement	Certification for legitimacy and consistency	Requirements; quality of training; training results	Maintain compliance; Criteria updates	Based on the formalization and routines of 2018
2020	Event COVID-19	Change for training, temperatures, PPE, testing	Responds quickly to disturbance, serving urgent needs	Pandemic context, customer needs, supply, logistics	Volatile demand, supply alterations, Rule changes	Reconfigured services using network plus logistics
2021	ACT (Training accreditation in OSH)	Regulatory reinforcement	Scale with control; Strengthen through e-learning	Requirements; performance in e-learning; quality;	Increased scrutiny; Stronger digital/operational processes	Institutionalized e-learning (2020) with certification discipline (2019)
2022	INEM (Training Accreditation)	Requirements framework and Credibility	Strengthening capacity	Standards, results for trainees, number of trainees	Training needs, lack of market supply	Reuse of DGERT and ACT know-how; Scalable Training Processes
2023	Health and Safety ACT (Authorized entity)	New Authorization Level	Expand into markets of higher demand and more competitors, use the installed resources	Pipeline, team capacity, inspection results, deadlines and quality	More complexity and reputational risk, governance	Controlled growth; In-depth regulatory capacity
2024	Protect	New unit and positioning	Cross-sell and integrated offer	Cross-Sell Conversion, Demand, Margins, Service	Integration between units; competition; Inventory risk	Applied PPE lessons provide more integration/controlled growth

Year	Milestone	Change	Challenges addressed	Factors monitored	Anticipated challenges	Learning from experiences
2025	Pharma	Regulated entry and logistics	Enter regulated pharmaceutical logistics, meet the requirements of the chain	Traceability, storage, suppliers, compliance KPIs	Audit Risk, Complex Chain, Controlled Escalation, Regulation	Learned combined COVID logistics with regulatory competence
2026	National scale	Multi-unit consolidation	Ensure resources and maturity for national growth	Unit KPIs, capacity planning, quality consistency, regional demand	Governance, Standardization, Logistics Risk	Integrated expansion, bundling and regulatory discipline in a scalable model

At the beginning recruiting a team of nurses that were subcontracted as needed the company performed clinical analysis. However, locally existed a strong demand of a Healthcare unit in Oeiras. The company thus built a unit in Oeiras as a response to this need.

The customers with food units needed food safety services. The company was involved in clinical analyses, with around 60,000 samples collected per year (Safegene, 2025c), and had experience in logistics, including sample collection across multiple locations, centralization, and expediting samples to various laboratories. This expertise was helpful in responding to a market opportunity. The company decided to expand into food safety, initially only with sample collection, but it quickly expanded its activities to provide full food safety services. By 2025, the company had processed more than 1.000 samples and conducted 3.000 food analyses across the country (Safegene, 2025a).

The existence of a experienced nursing team was highly valued by the company's customers. These nurses were also requested to carry out specific first aid training. In 2018, the company carried out for the first time 54 non-certified training actions (Safegene, 2025a). The same responsiveness and expertise acquired in the health sector allowed the company, to extend the activity to food analyses and to other areas like training costumers throughout the country. As this training activity grew, and as recognition and demand increased in other areas, it became necessary to formalise the training and give it more autonomy, and credibility, while ensuring standardized processes by obtaining official certifications, namely DGERT certification, ACT accreditation, and INEM certification (Safegene, 2025b).

During this period of evolution, COVID-19 (2020–2022) emerged as a disruptive event and a stress test for capacity. Facing the risk of a sharp decline in activity, the company redirected internal resources and its provider network to urgent customer needs. Initially, the training team conducted awareness and prevention sessions, while nurses supported essential sectors with field monitoring (e.g., temperature screening) and PPE practices. Proximity to customers also enabled a shift into PPE supply (masks, gloves, and alcohol solutions), including distribution to health-related clients. The organization later expanded into testing services and large-scale on-site operations. Training delivery moved to online formats, blended sessions, and e-learning, with program adjustments to comply with changing rules and constraints. The company reports significant turnover growth in 2020–2021 compared to 2019 (Safegene, 2025c).

With the end of the Covid-19 pandemic, after being in contact with a wide variety of companies, the company gained a unique credibility based on its ability to respond to customer needs. An emerging need for occupational safety services was raising. The transition from identifying a business opportunity to obtaining authorization from the ACT in 2023 was an easy step to take. At this stage, the company started providing Occupational Safety services throughout the country. Its network of nurses enabled it to carry out alcohol and drug tests in companies across mainland Portugal, Azores and Madeira islands, and by 2025 it became one of the market leaders (Safegene, 2025a).

Training was reinitiated, and the company conducted certified training in six areas (Safegene, 2025a). The number of first aid training sessions exceeded 100 per year (Safegene, 2025c), and by the end of 2025, the company had conducted over 300 training sessions with over 3200 trainees, 25% of whom were online. First aid training created the opportunity to sell first aid kits. Initially, the company built them and then started importing them.

The Protect unit was established in response to customer demand for a single provider of professional signage and clothing. It builds on the distribution and logistics routines created during COVID-19 (procurement, inventory management and national dispatch), which made it possible to supply clients anywhere in the country with short lead times. Protect also reinforced cross-selling by bundling preventive services with tangible safety goods, while introducing inventory and integration risks. In parallel, experience in the health area and closer interaction with pharmacies supported expansion into the pharmaceutical domain. The company created a Pharma unit to operate in a more strictly regulated supply chain (traceability, storage conditions, audited suppliers) and reports authorisation as a pharmaceutical wholesaler by late 2025 (Safegene, 2025a).

Throughout the decade, the meaning of ‘operational capacity’ evolved (Table 1). In the initial phase, monitoring focused on demand signals, service KPIs and profitability in the use of providers, as well as growth of the customer base. Later it incorporated the ability to carry out audits and food analysis in Food Safety. In training, monitoring included trainer performance, feedback and the number of trainees in in-person and e-learning sessions. Finally, across units, attention shifted to inventory, service levels, logistics and traceability indicators. Anticipated challenges also changed: from scalability and process formalisation, to maintaining compliance while expanding scope, and finally to avoiding coordination overhead and standardising delivery between units.

From 2021 to 2025, the trajectory was characterised by ‘scale with control’. The company consolidated the credibility acquired during COVID-19 through standards, accreditations and authorisations that supported consistent delivery across regions and channels (in-person and digital). In 2024–2025, Protect and Pharma can be seen as moves up the value chain, adding new operational interfaces (cross-selling, inventory management and a more strictly regulated logistics chain). However, as scope widened and units became more interdependent, the binding constraint shifted from service delivery to coordination (planning, quality, compliance and logistics) and to margin management, culminating in coordination bottlenecks. In practice, this requires clearer governance between units, shared KPIs and disciplined handovers to keep responsiveness without eroding compliance.

The company progressed from local, customer-oriented adaptations to adaptations integrated into a portfolio of several interconnected interdependent units. Hollnagel's potentials become more explicit over time (Respond and Monitor at the beginning, evolving during COVID-19 and subsequent periods to Learn and Anticipate reinforced through the formalization of training and

regulatory reinforcement). These results support the idea that the company's differentiation strategy aligns with a resilient approach. From very early on, a highly focused coordination nucleus emerges and converts field experience into training and routines, takes advantage of regulatory content to stabilize quality and cement credibility with customers, and uses a wide network of suppliers to increase capacity without collapsing due to the variability in services and customer needs.

4. DISCUSSION

The operating structure described helps to explain how the company was able to grow by units without relying on linear expansion and linear organic growth. This design is like what Organizational Resilience describes as the ability to sustain performance under variability, through mechanisms that enable adaptation possible and governance (Ham, 2021; ISO, 2017). The Resilience approach that emerged from analysing the company's characteristics and components showed an organizational culture that fosters autonomy and feedback. This reinforces the role of strategic human resource management practices and aligns organizational culture, thus strengthening organizational resilience (Georgescu *et al.*, 2024).

According to Hollnagel's theory of organisational safety, the trajectory suggests progressive reinforcement of the four potentials: Respond, Monitor, Learn, and Anticipate. Respond was demonstrated in rapid mobilisation of operational capabilities, particularly in national operations and during COVID-19. Monitor arises from continuous proximity to customers and the need to sustain field KPIs. Learn becomes visible when the organisation converts each challenge into routines, training content and service packages that can be repeated at scale. Anticipate strengthens as regulation and operational scope increase, requiring planning, investment and tighter governance (Hollnagel, 2009, 2010, 2015).

Across phases, the emphasis shifts: early years privilege fast response and relationship-building; diversification adds routinisation and learning; later certifications stabilise delivery; and at national scale the main constraint moves to cross-unit coordination and governance. across units, regions and delivery modes over time.

From 2023 forward, as the organisational scope widened (e.g., Protect and Pharma), interdependence and supply-chain exposure increased. This phase added new operational interfaces (sales pooling, cross-selling, inventory risk and stricter traceability), raising both opportunity and coordination cost. When operations reached national scale, effective functioning depended on mobilising all four resilience potentials concurrently. At this stage, coordination becomes the key constraint and the area where systemic risk is most likely to accumulate, particularly when demand surges or regulatory scrutiny intensifies. This makes buffer management and priority-setting essential to avoid overload in planning, compliance and logistics during peaks.

However, it is the same elasticity enabling growth that introduces the tension described by the ETTO: the pressure for efficiency (coverage, velocity and volume) competes with the need for rigor and the prevention of clinical, safety, and regulatory risks. The ETTO clarifies the operational issue, by identifying where optimization is acceptable and where thoroughness is mandatory, as well as the conditions (buffers, minimum rules, supervision) that enable workers to make autonomous and consistent decisions reliably (Hollnagel, 2009).

Woods (2015) proposes four concepts that fit the case. Rebound describes returning to acceptable performance after a disruption, which is visible in the pandemic period as the company shifted offerings rather than pausing activity. Robustness refers to absorbing variations while maintaining

critical functions; in later years, certifications and accreditations supported more stable and repeatable delivery. Graceful extensibility is evident when the organisation mobilises additional resources (providers, logistics, digital delivery) as demand exceeds installed capacity, avoiding collapse. Finally, sustained adaptability refers to longer-term change—how the organisation reconfigures over time and converts local adaptations into routines, training and governance that support differentiation. Woods also warns that when planning, quality, logistics and compliance saturate, margins can erode and fragility rises; thus differentiation requires explicit management of buffers, priorities and learning mechanisms (Woods, 2015, 2018; Herrera, 2016).

Woods (2018) argues that early investments create fixed capacity and margin, but subsequent growth increases interdependence and shifts limits toward coordination. By national scale, the main risk lies in coordination between units and along the supply chain. Cook (1998) similarly notes that local adaptations that keep work functioning under variability become institutionalised through norms, routines and ‘work-as-done’ discipline. This supports performance but can accumulate latent risk near system limits, reinforcing the role of after-action learning and feedback to preserve flexibility while managing coordination risk (Cook, 1998; Ham, 2021).

5. CONCLUSIONS

This work analysed how adaptive capacity can constitute a competitive differentiating factor in small and medium-sized companies operating in contexts of high variability under regulatory conditions and regulatory demanding. Through a retrospective analysis of the company's evolution in the last decade, it was possible to demonstrate how local responses to market needs, disruptive events and regulatory requirements were progressively transformed into structured routines and adaptations of the company. Over time, these adaptations have supported the expansion of a multi-unit portfolio and made it possible to operate on a national scale without recurring to a linear growth in installed capacity. The results show that, as the complexity and resource management of the system increased, the main challenge was no longer the provision of the service itself but the coordination between units and along the supply chain. The company's differentiation was not based on an isolated capacity or service, but on its ability to simultaneously articulate response, learning, anticipation and monitoring, maintaining performance and managing the risks inherent to growth in contexts of high variability.

The main limitation of the study stems from the data collection being based on internal organizational documents, which may introduce organizational bias into the data analysis.

Future work could compare multiple cases from other similar entities, collect indicators more systematically and deepen performance coordination indicators.

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